MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
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SRM Number: 870
MSDS Number: 870
SRM Name: Column Performance Test Mixture for Liquid Chromatography
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SECTION I. MATERIAL IDENTIFICATION

Material Name: Column Selectivity Test Mixture for Liquid Chromatography

Description: A mixture of five organic compounds (uracil, toluene, ethybenzene, quinizarin, and amitriptyline) in methanol.

Other Designations: Methanol (methyl alchohol, wood alcohol, methyl hydroxide, carbinol, monohydroxymethane, wood spirit, wood naphtha, methylol, *Colonial Spirit**, *Columbian Spirit**, *Pyroxylic Spirit**)

Name	Chemical Formula	CAS Registry Number
Methanol	CH_3OH	67-56-1

DOT Classification: Flammable and Poisonous, UN1230

Manufacturer/ Supplier: Available from a number of suppliers

* Trade name

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration	Exposure Limits and Toxicity Data
Methanol	99.4 %	ACGIH TLV-TWA (skin): 200 ppm or 262 mg/m^3
		OSHA TLV-TWA (skin): 200 ppm or 262 mg/m^3
		Human, Inhalation: TC_{LO}: 86000 mg/m^3
		Human, Inhalation: TC_{LO}: 300 mg/kg
		Human, Oral: LD_{LO}: 143 mg/kg
		Man, Oral: TD_{LO}: 3429 mg/kg
		Rat, Oral: LD_{50}: 5628 mg/kg

NOTE: This material contains amitriptylene, ethylbenzene, quinizarin, toluene, and uracil at concentrations below the reportable limit (0.l % for carcinogens, l % for all other health hazards) required by OSHA according to 29 CFR 1910.1200 (g)(2)(i)(c)(1).

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Methanol
Appearance and Odor: a clear, colorless liquid with a characteristic alcoholic odor
Relative Molecular Mass: 32.04
Density: 0.7914 g/ml
Boiling Point: 65 °C
Freezing Point: -94 °C
Vapor Pressure (@ 20 °C): 97.25 mm Hg
Evaporation Rate (butyl acetate = l): 4.6
Viscosity (@ 20 °C): 0.59 cP
Solubility in Water: soluble
Solubility in Other Solvents: soluble in ether, benzene, alcohol, acetone, chloroform, ethanol, ketones, and most other organic solvents

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Methanol
Flash Point: 11 °C **Method Used:** Closed Cup **Autoignition Temperature:** 385 °C

Flammability Limits in Air (Volume %): **UPPER:** 36
LOWER: 6.0

Unusual Fire and Explosion Hazards: Methanol is a severe fire and explosion hazard when exposed to heat or flame. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Vapor and air mixtures are explosive.

Extinguishing Media: Use alcohol-resistant foam, dry chemical, carbon dioxide, or water spray.

Special Fire Procedures: Fire fighters should wear a self-contained breathing apparatus (SCBA) with a full face piece in the pressure demand or positive mode and other protective clothing.

SECTION V. REACTIVITY DATA

Stability: **X** **Stable** _____ **Unstable**

Conditions to Avoid: Avoid contact with heat, sparks, flames, or other sources of ignition. Avoid inhalation of vapors or combusion by-products. Avoid contact with the skin. Do not allow the material to contaminate water sources.

Incompatibility (Materials to Avoid): This material is incompatible with halo carbons, combustible materials, metals, oxidizing materials, halogens, metal carbide, bases, and acids.

See Section IV**:** *Unusual Fire and Explosion Hazards*

Hazardous Decomposition or Byproducts: Thermal decomposition products may include toxic oxides of carbon.

Hazardous Polymerization: _____ **Will Occur** **X** **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: **X** **Inhalation** **X** **Skin** **X** **Ingestion**

Methanol: Methanol is a fatal poison. This material is harmful if inhaled or absorbed through skin. Ingestion may be fatal or cause blindness. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause damage to the eyes, liver, heart, and kidneys. Methanol may also cause gastrointestinal disturbances, convulsions, and/or nerve damage.

Medical Conditions Generally Aggravated by Exposure: Methanol may affect eye disorders, kidney disorders, skin disorders, and allergies.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: Methanol: central nervous system

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills and/or leaks. Evacuate nonessential personnel. Stop the leak if one can do so without risk. Absorb small spills with sand or other absorbent material and place into containers for disposal.

Waste Disposal: Follow all federal, state, and local laws governing disposal.

Handling and Storage: Persons handling this material must wear protective eyewear, clothing, and gloves to prevent contact with this material.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

This material should be stored in a cool, dry, well-ventilated area away from incompatible materials and conditions. Protect containers from physical damage.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Methanol*, 02 June 1999.
Merck Index, 11th Ed., 1989.
The Sigma Aldrich Library of Chemical Safety Data, Ed. II, 1988.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data on the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.